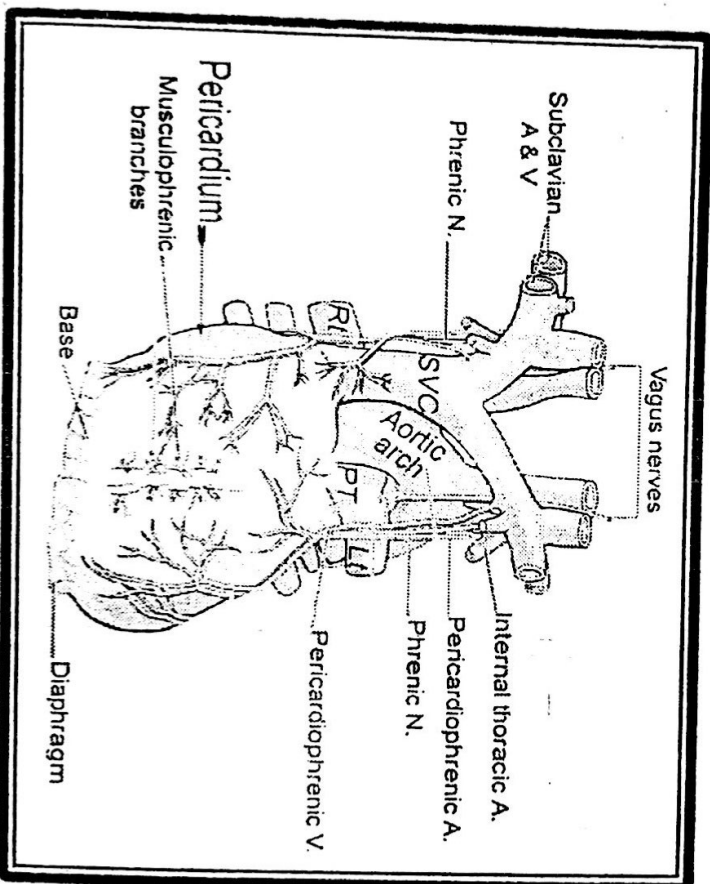


Pericardium

A double-walled fibroserous conical-shaped sac, inside middle mediastinum. Enclose the heart and roots of its large vessels.



Pericardium - Sagittal section

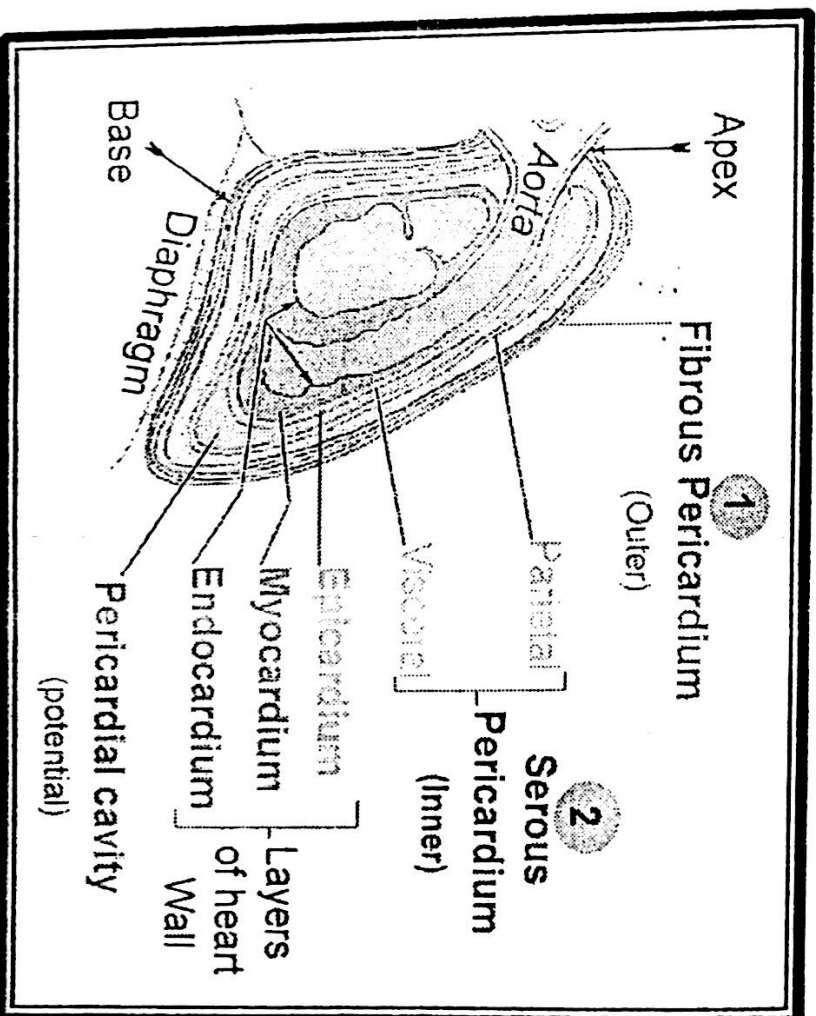
Parts:

1. Fibrous pericardium.
2. Serous pericardium.

Fibrous pericardium

Conical-shaped fibrous sac.

- Base: Attached to central tendon of diaphragm.
 - Apex: Attached to roots of large vessels.
- Prevent overextension of the heart.

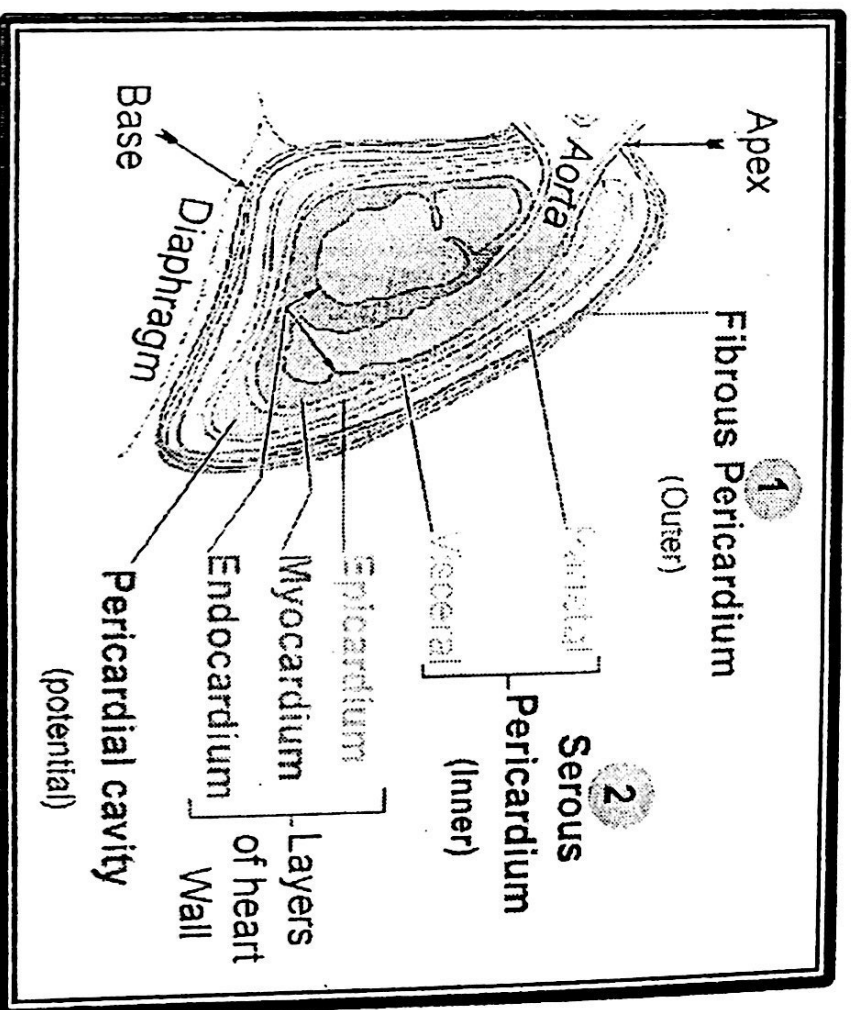


Serous Pericardium

Complete serous sac invaginated by the heart. Like pleura by the lung .

- 2 layers:
 - Parietal layer → lines fibrous pericardium.
 - Visceral layer → covers the heart as (Epicardium).

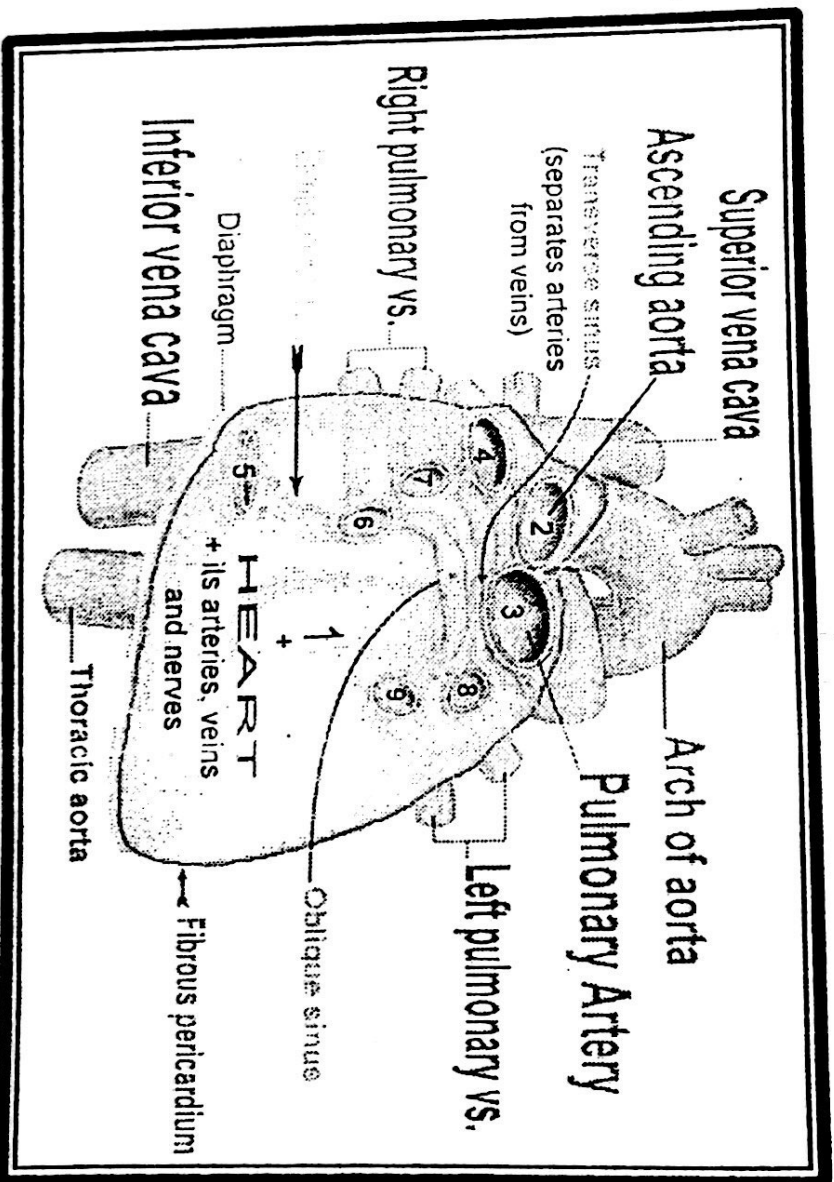
- Pericardial cavity:
A potential space between 2 serous layers.



Contents of pericardium

Contents:

1. Heart and its arteries, veins and nerves.
2. All Ascending aorta.
3. All Pulmonary Artery.
4. Last 2cm of SVC.
5. Last 2cm of IVC.
6. First part of the 4 pulmonary veins.
7. Transverse sinus.
8. Oblique sinus.



Heart

- Pyramidal-shaped muscular organ.

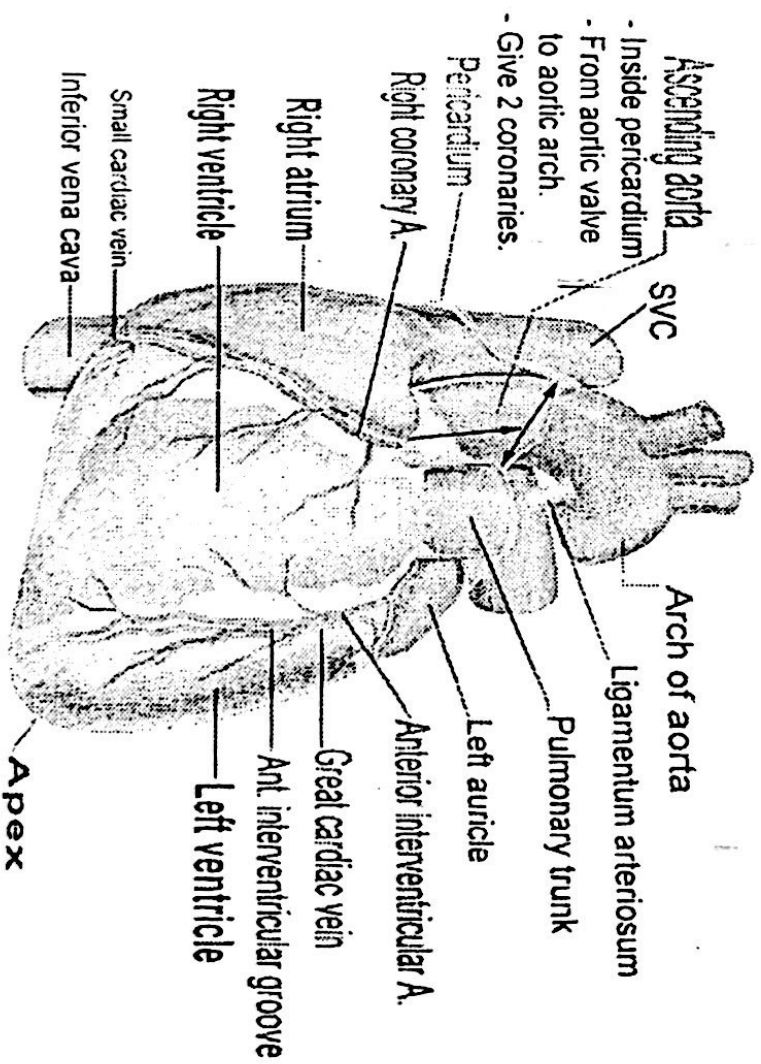
- About the size of the person's own fist.

Apex:

- directed downward, forward and to the left. Located at the left 5th intercostal space about 9cm from midline.
- Form by the **left ventricle**.

Base:

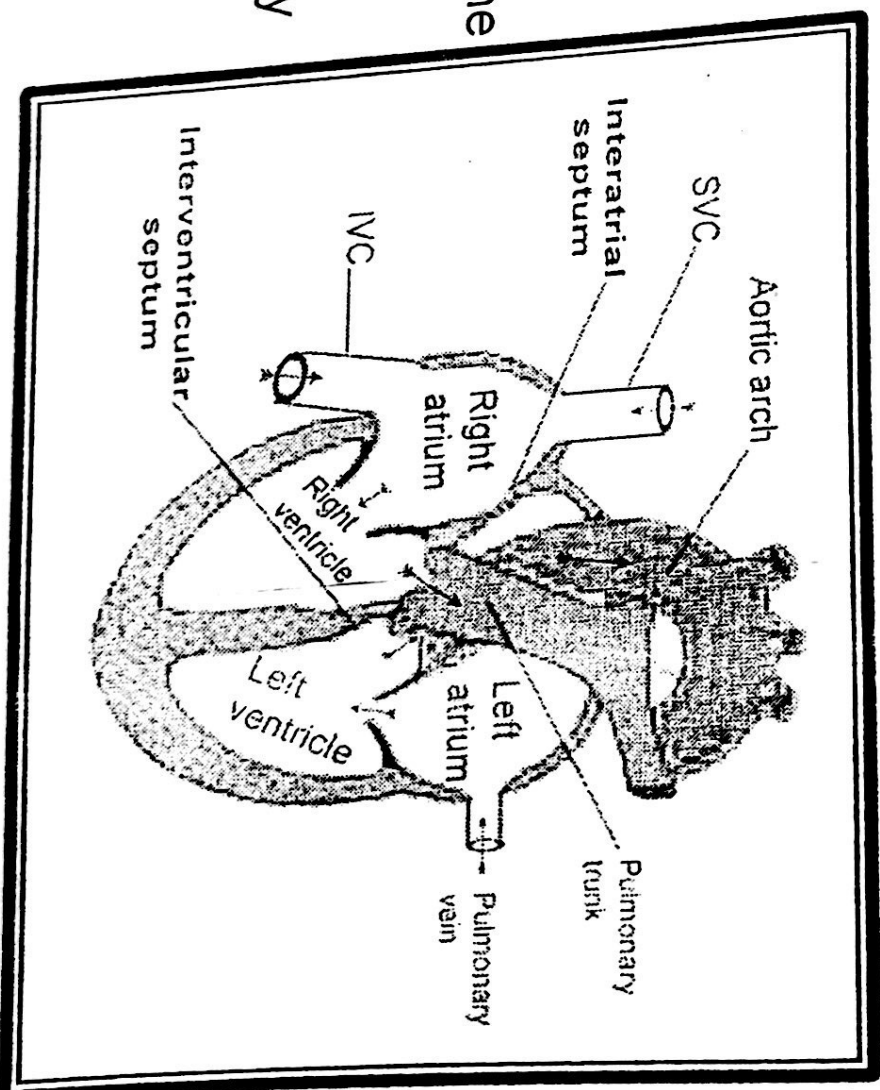
- Directed posteriorly, form by left atrium.



Chambers of heart

Form of 4 chambers:

- 2 atriums above.
- 2 ventricles below.
- Atriums separated from inside by the interatrial septum.
- Ventricles separated from inside by the interventricular septum.

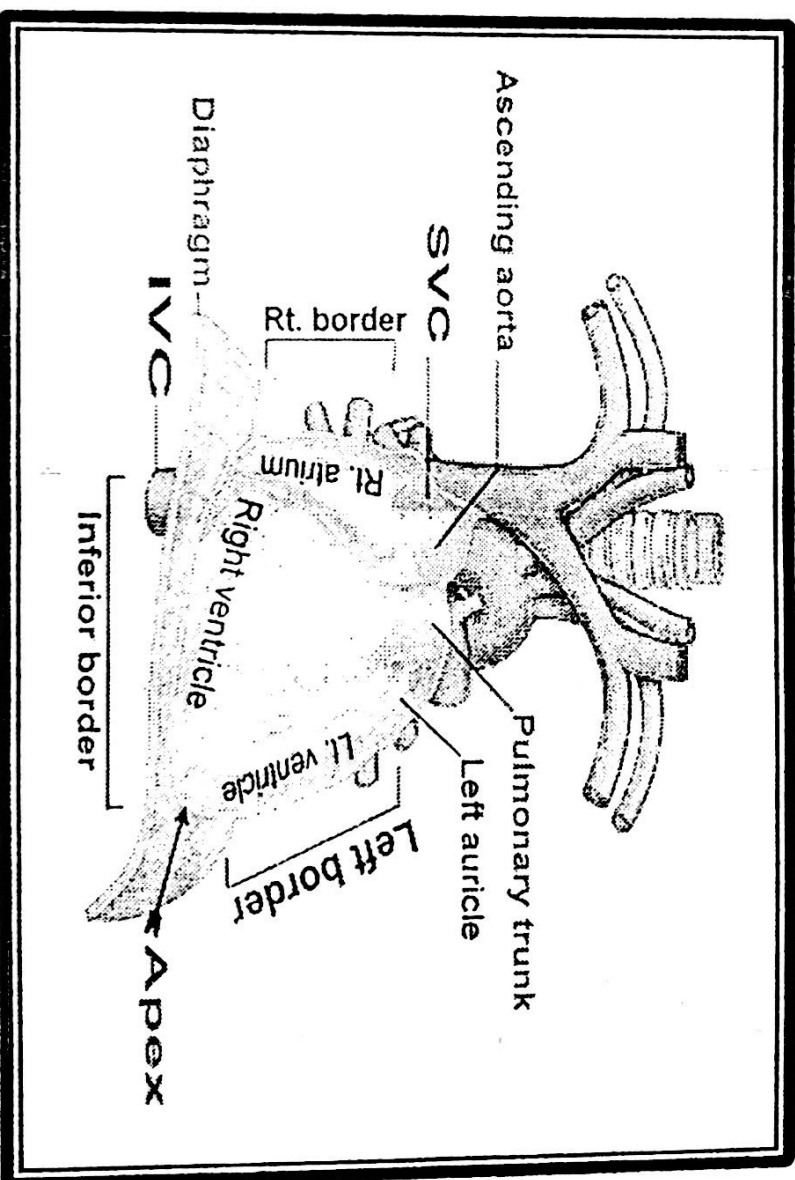


Borders of the Heart

Due to rotation of the heart 45° to the left, the right side becomes anterior and the left side becomes posterior.

Has 3 borders:

- Right: Right atrium.
- Left: left ventricle.
- Inferior: Right ventricle.



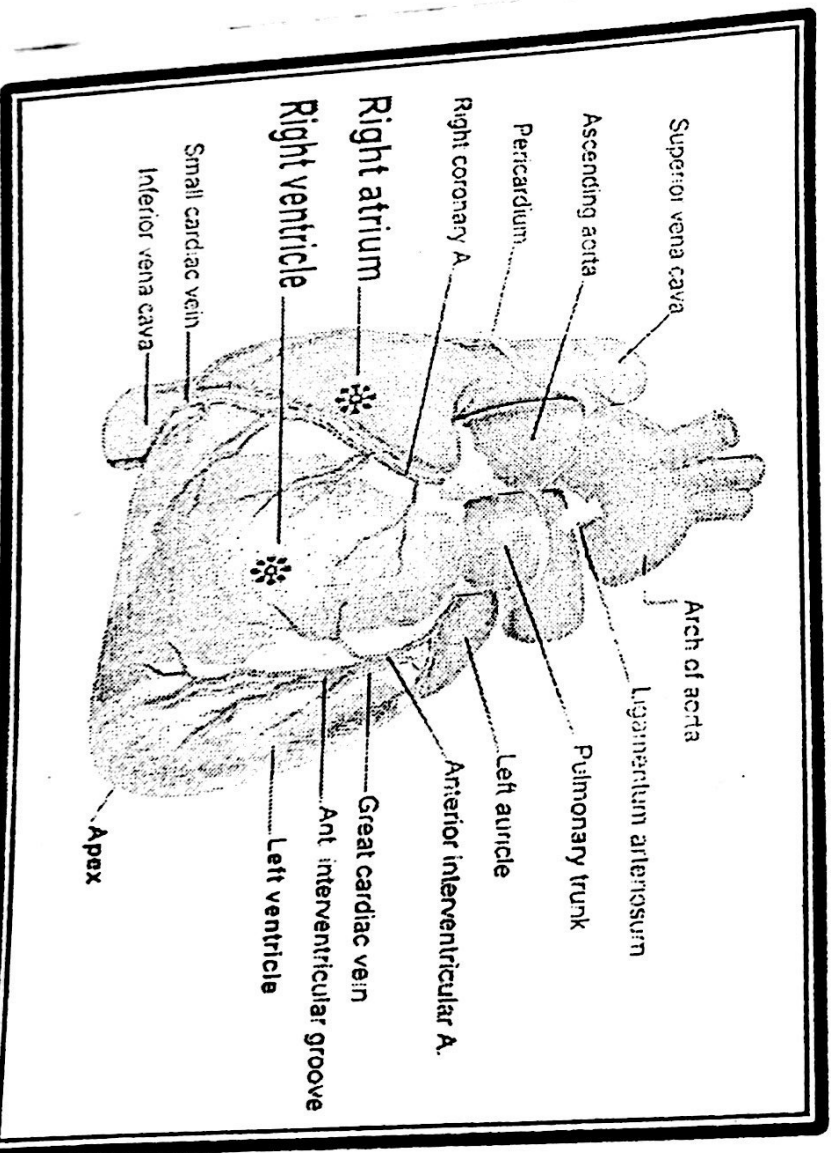
Surfaces of the heart

1. Anterior surface.
2. Inferior surface.
3. Base.

Anterior (Sternocostal)

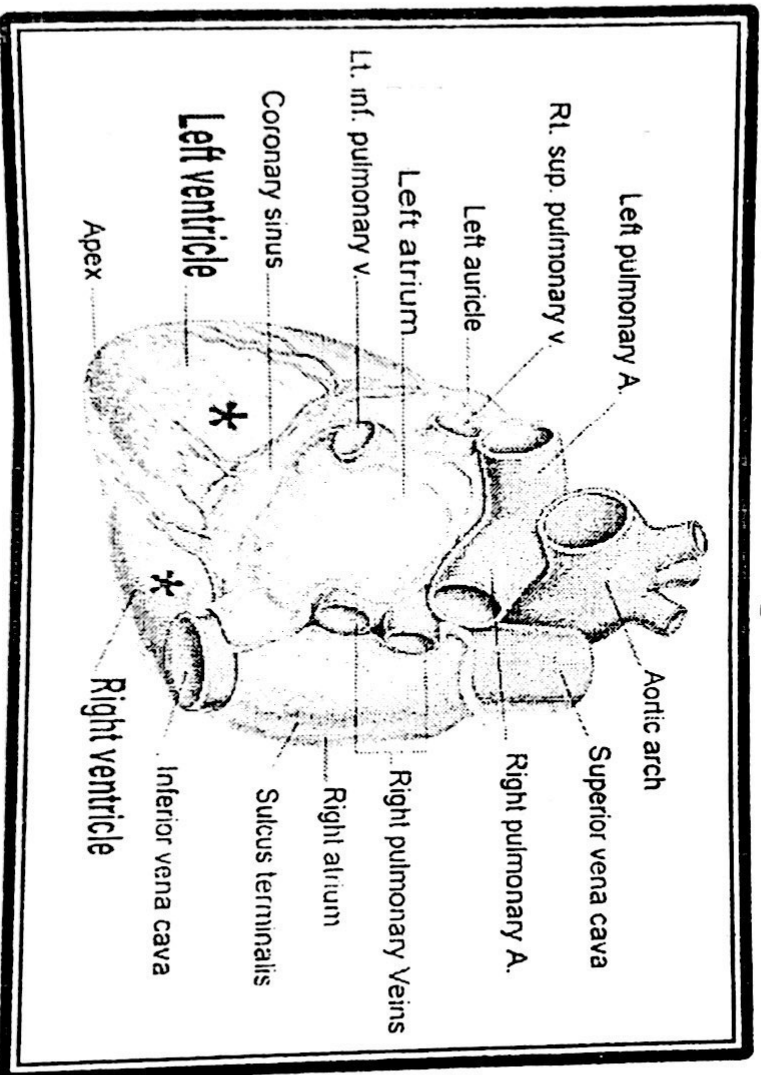
Form by

- Right ventricle.
- Right atrium.



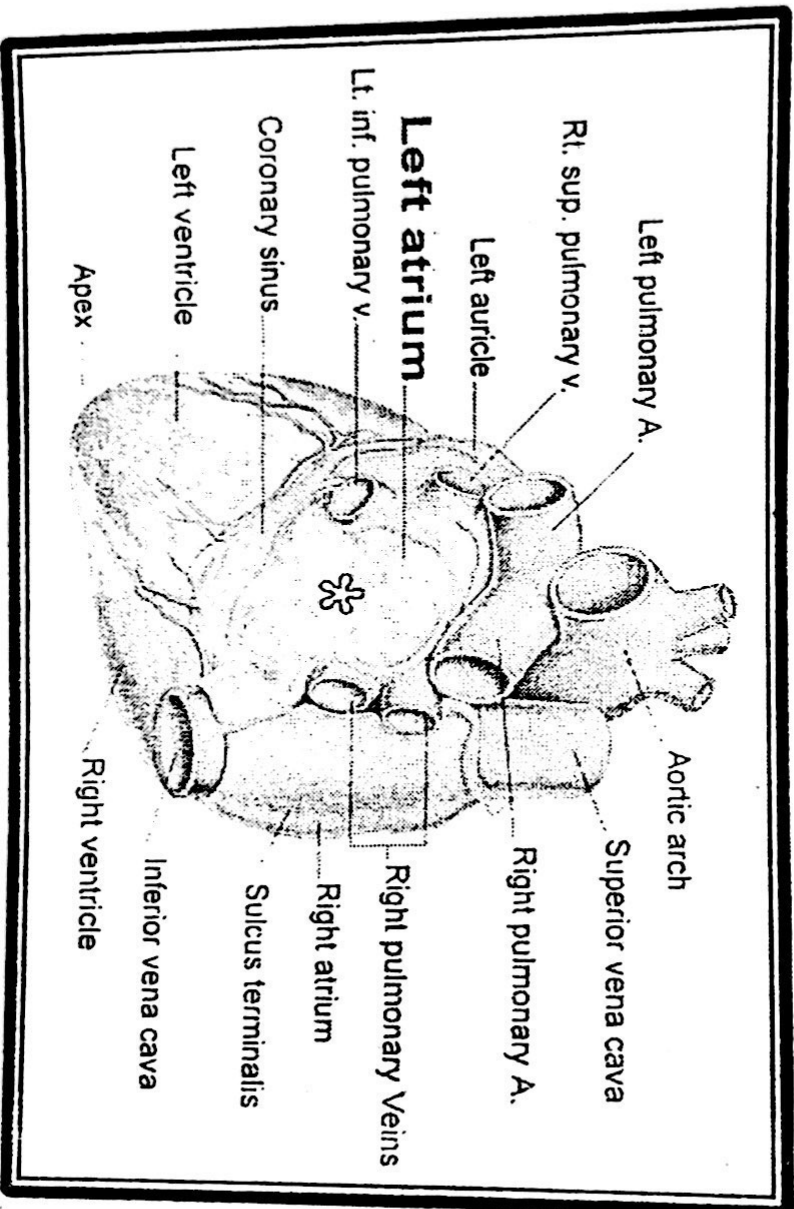
Inferior surface of the heart (Diaphragmatic surface)

- Form mainly by left ventricle and right ventricle.



Base of the heart

- Directed posterior, opposite the apex.
- Form by left atrium.



- Receives venous blood from the whole body by:

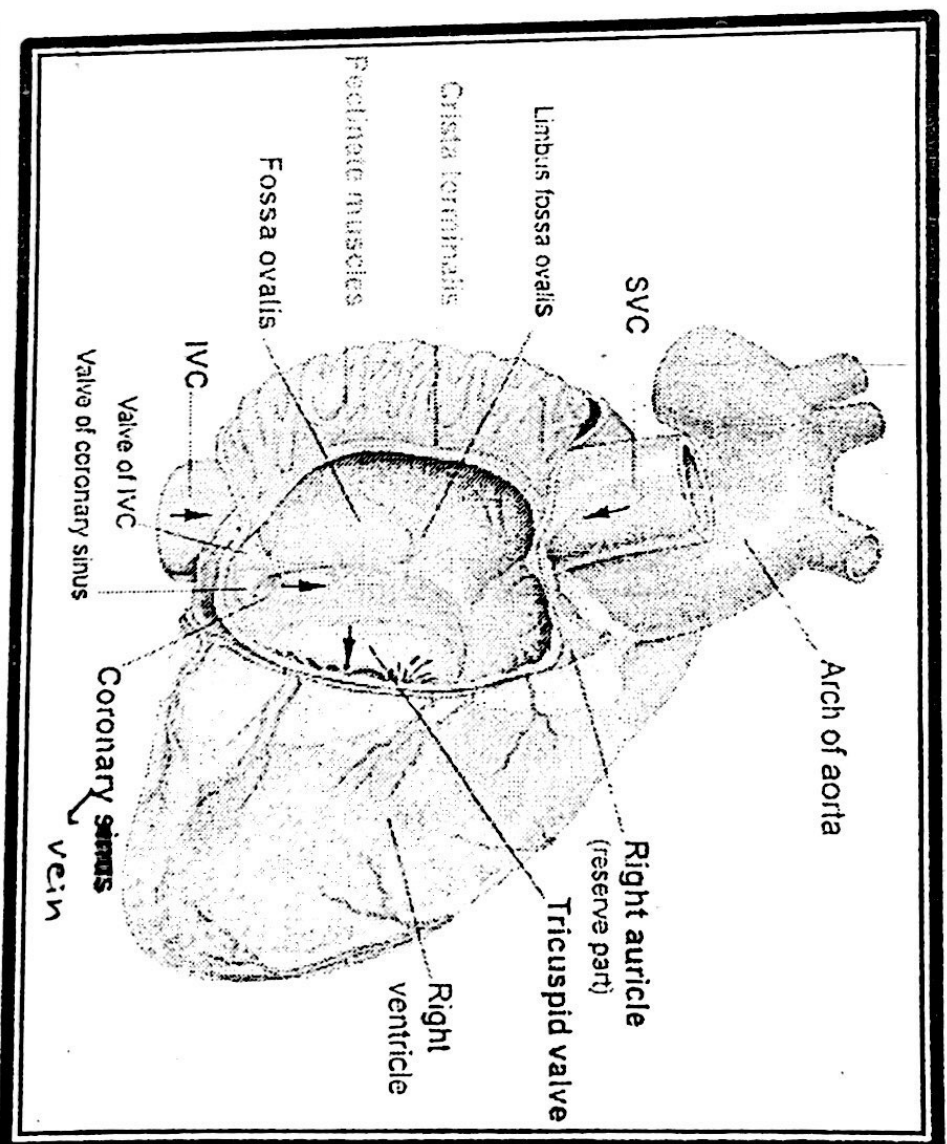
1. SVC from upper 1/2.
2. IVC from lower 1/2.
3. Coronary ~~sinus~~^{vein} (coronary vein) from the heart itself.

- Send blood to right ventricle by Tricuspid valve.

Has 2 walls:

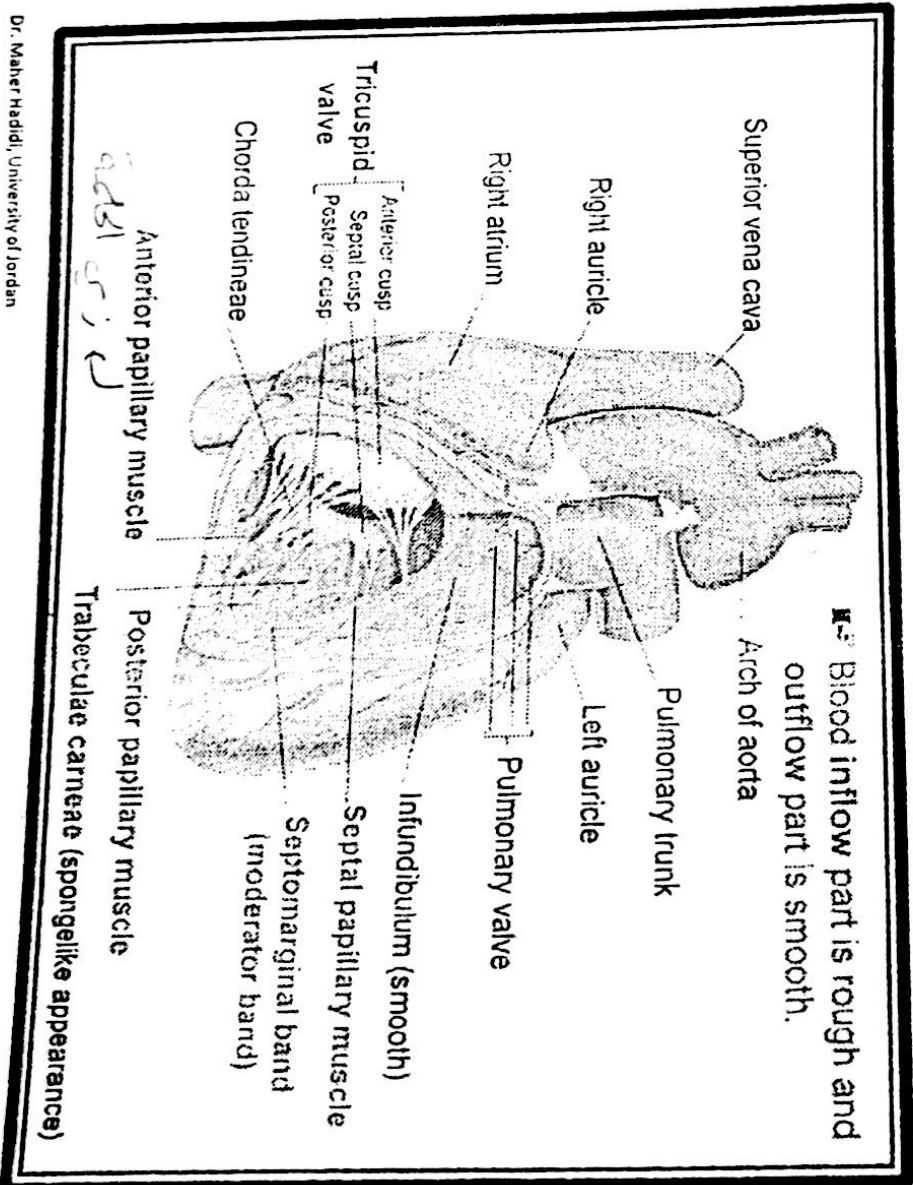
- Anterior wall, rough.
 - Pectinate muscles.
 - Crista terminalis.
- Posterior wall, smooth
 - Fossa ovalis.
 - SA Node.

Interior of right Atrium



Interior of right Ventricle-1

- Receives blood by Tricuspid valve.
- Send blood to both lungs via Pulmonary valve.
- Wall thicker than right atrium.



Interior of right Ventricle-2

Has 2 walls:

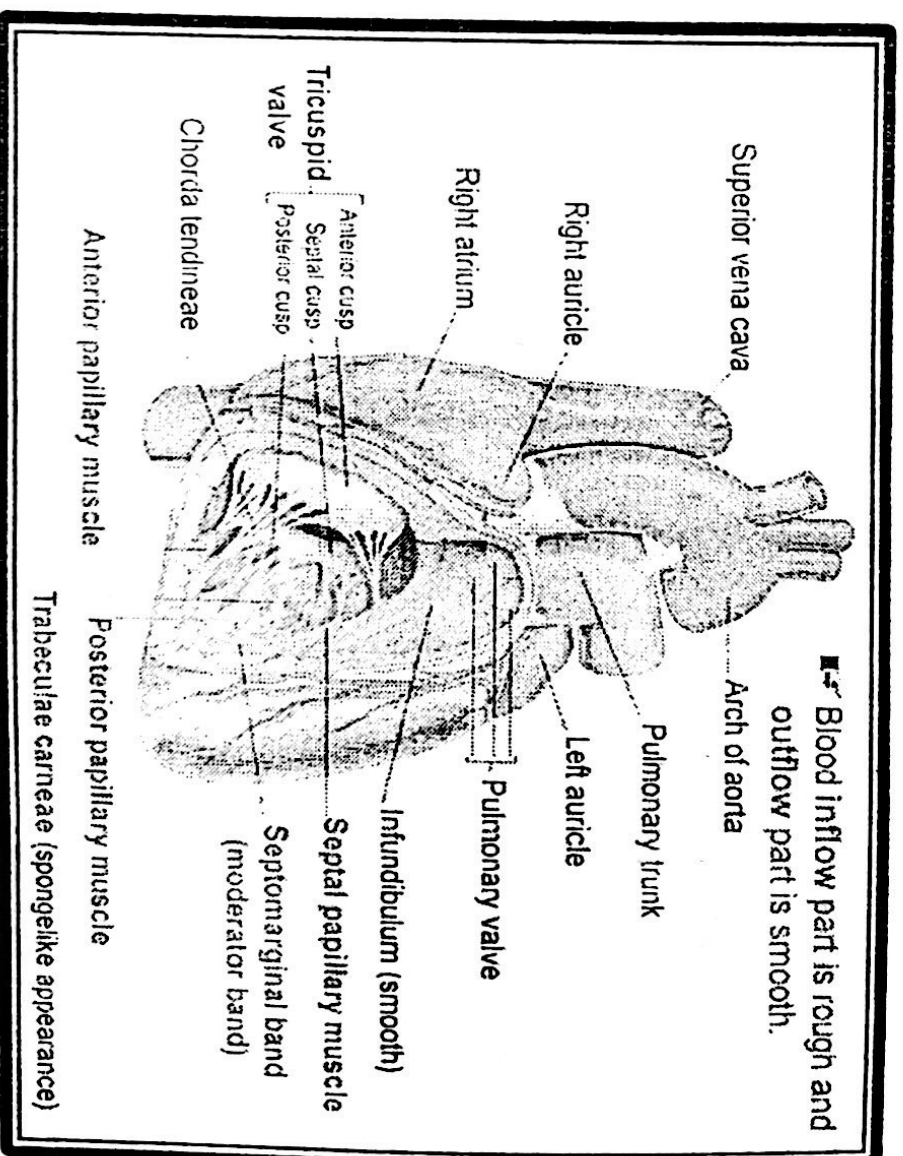
➤ Anterior wall (inflow part).

Rough with a network of projecting cardiac muscle bundles. e.g.

- Trabeculae carneae.
- Septomarginal band.
- Papillary muscles.

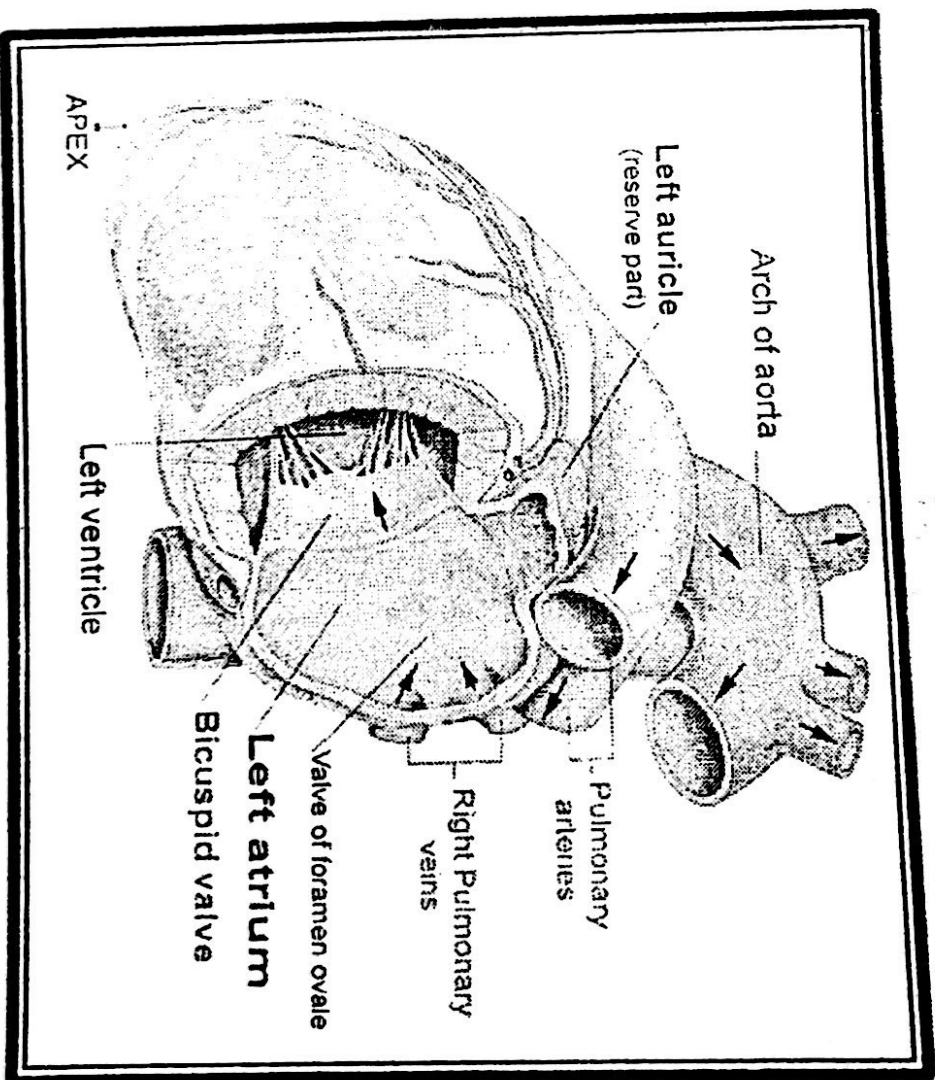
➤ Posterior wall, (outflow part) smooth in part. e.g.

- Infundibulum of pulmonary artery.



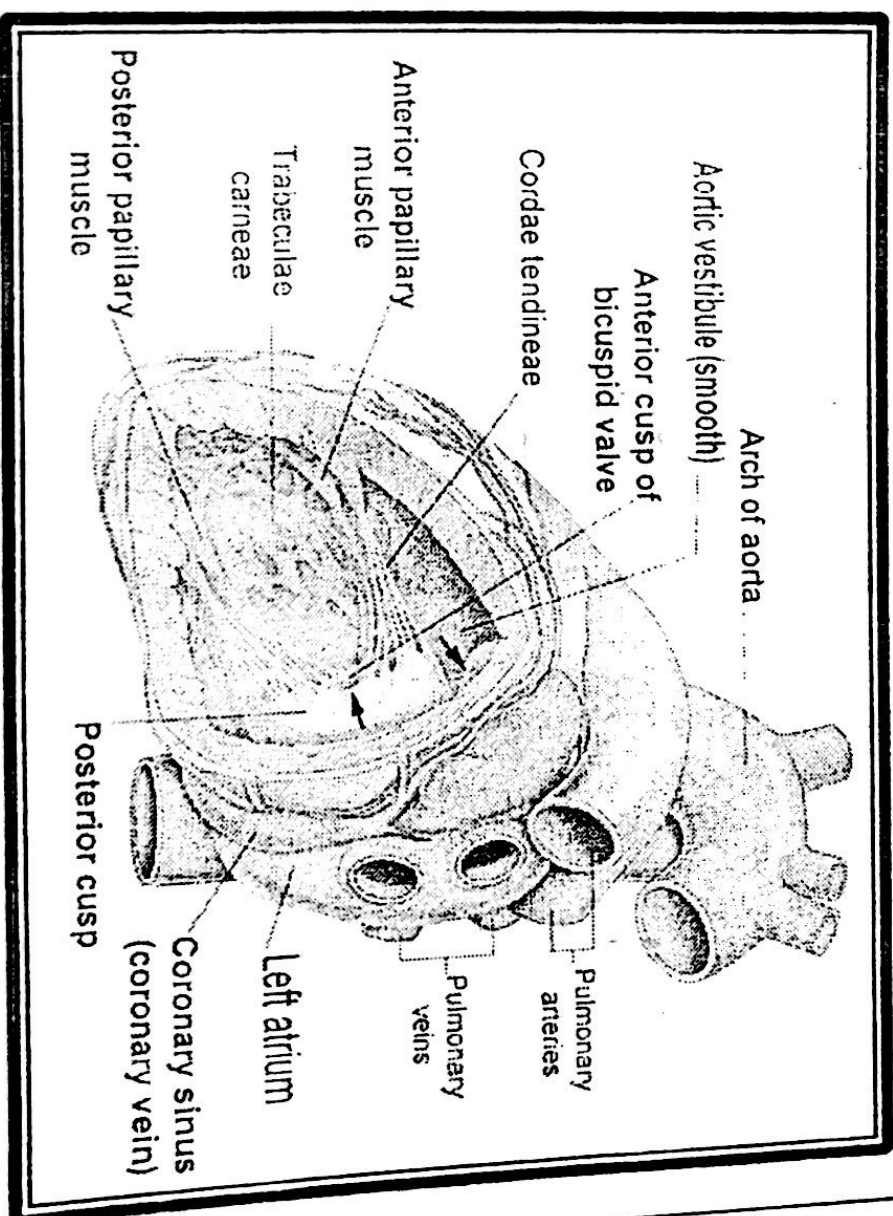
Left atrium

- Form base of the heart.
- Receive blood by:
4 pulmonary veins.
- Send blood by: Bicuspid valve to the left ventricle.
- Ant. Wall: Rough, especially its auricle.
- Post. Wall: Smooth.



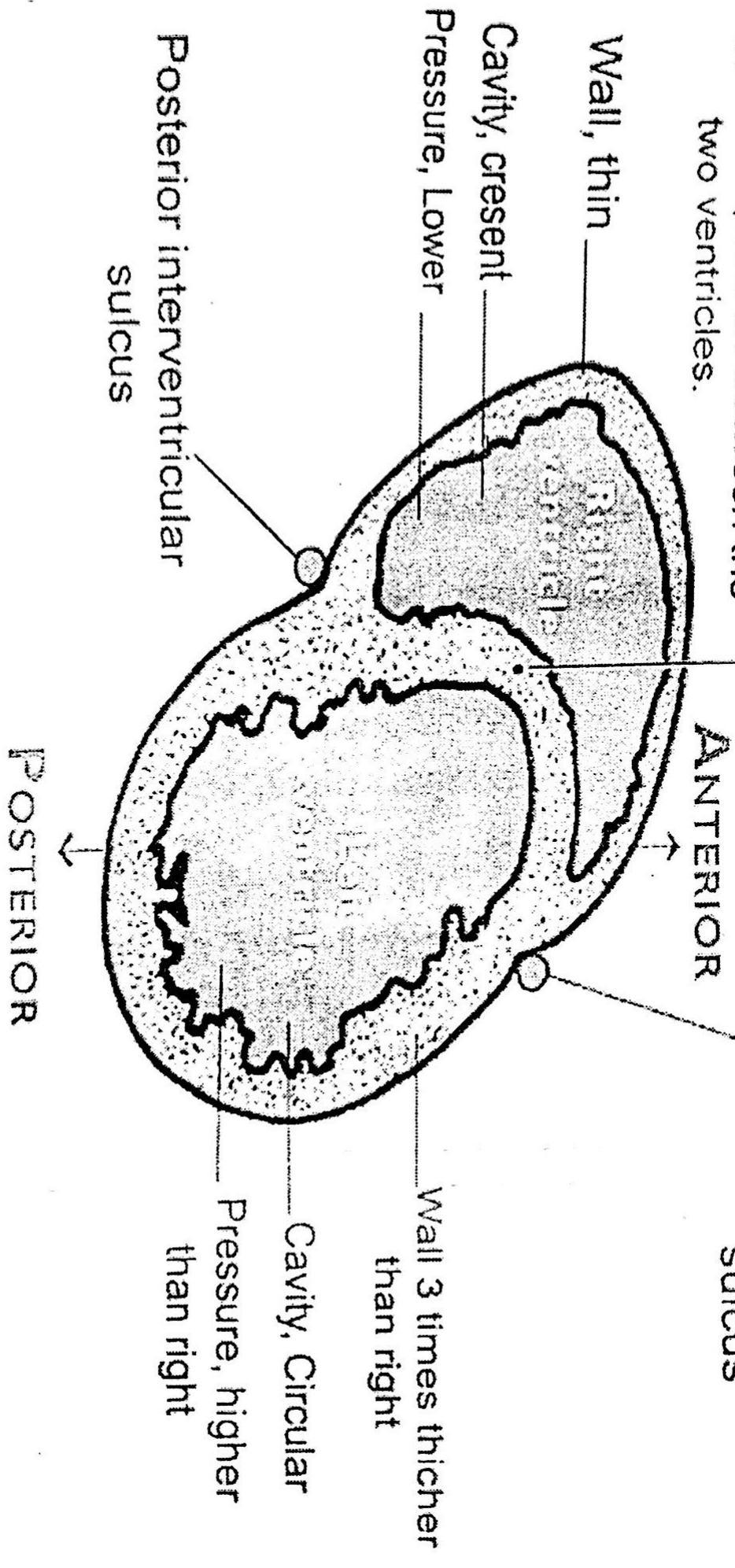
Left ventricle

- Main chamber of the heart.
- Form apex of the heart.
- Receive blood by: Bicuspid valve
- Send blood by: Aortic valve.
- Has thicker wall.
- Ant. Wall (I.V.septum): Smooth in part.
 - Aortic vestibule.
- Post. Wall: Rough.
 - Trabeculae carneae.
 - Papillary muscles.



Comparison between the two ventricles.

Interventricular septum



Rt. coronary:

- From ascending aorta.
- Smaller than the Left.
- Pass in coronary sulcus between PT and Rt auricle.
- Pass at inferior surface.
- Branches: 1-4.
- number 2 in 60% of people.

Ascending aorta

Pulmonary trunk

1 Right coronary A.

2 SA nodal artery

Right atrium

3 Marginal branch

Right ventricle

Both anastomose freely in the heart.

Both anastomose at the apex.

Left coronary:

- From ascending aorta.
- Larger than the right.
- Pass in coronary sulcus between pulmonary trunk and left auricle.
- Pass at inferior surface.
- Branches: 1-3.
- Number 2. main artery to left ventricle.

Arch of aorta

Left coronary A.

Left auricle

Circumflex branch

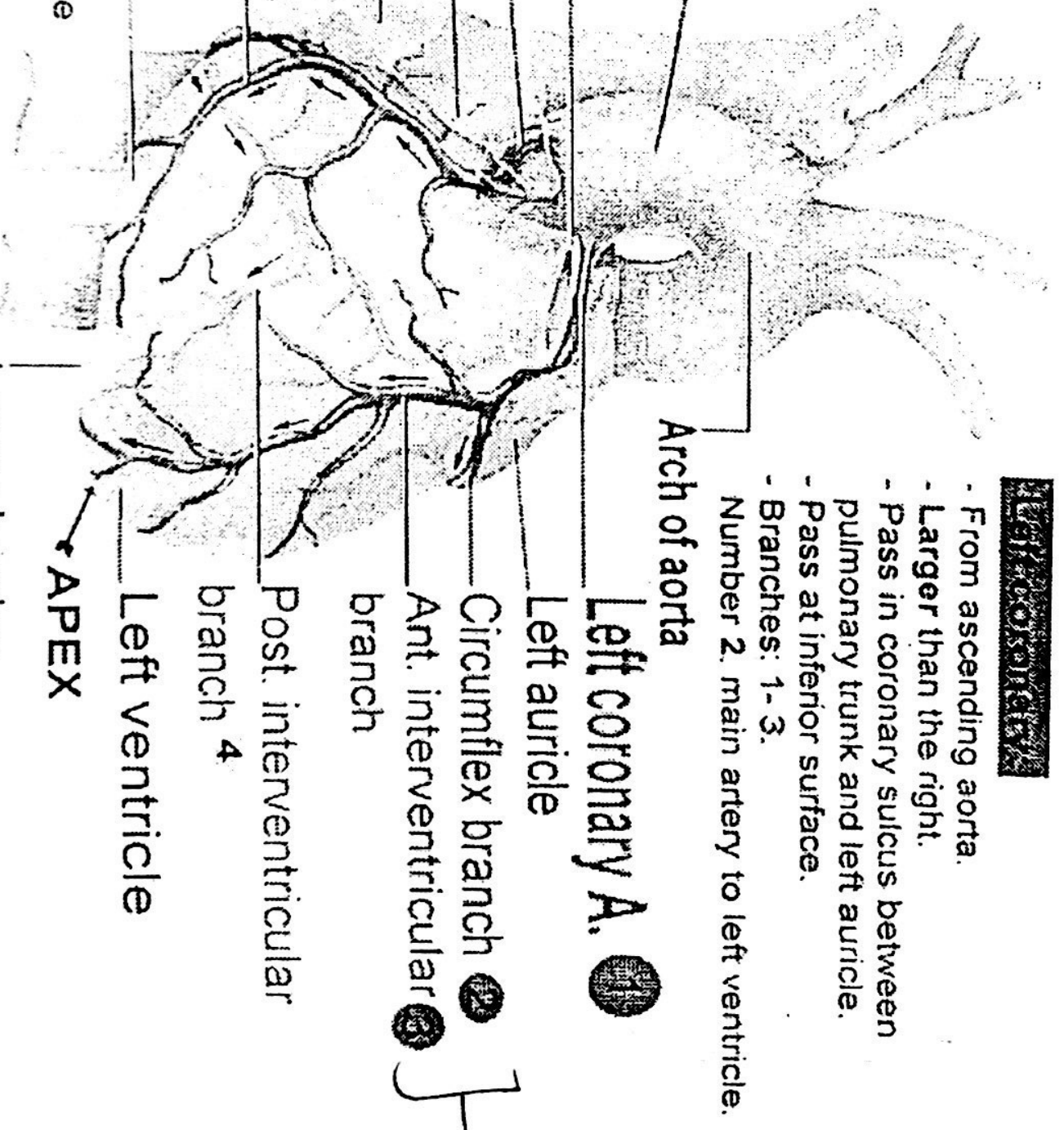
Ant. interventricular branch

Post. interventricular branch

Left ventricle

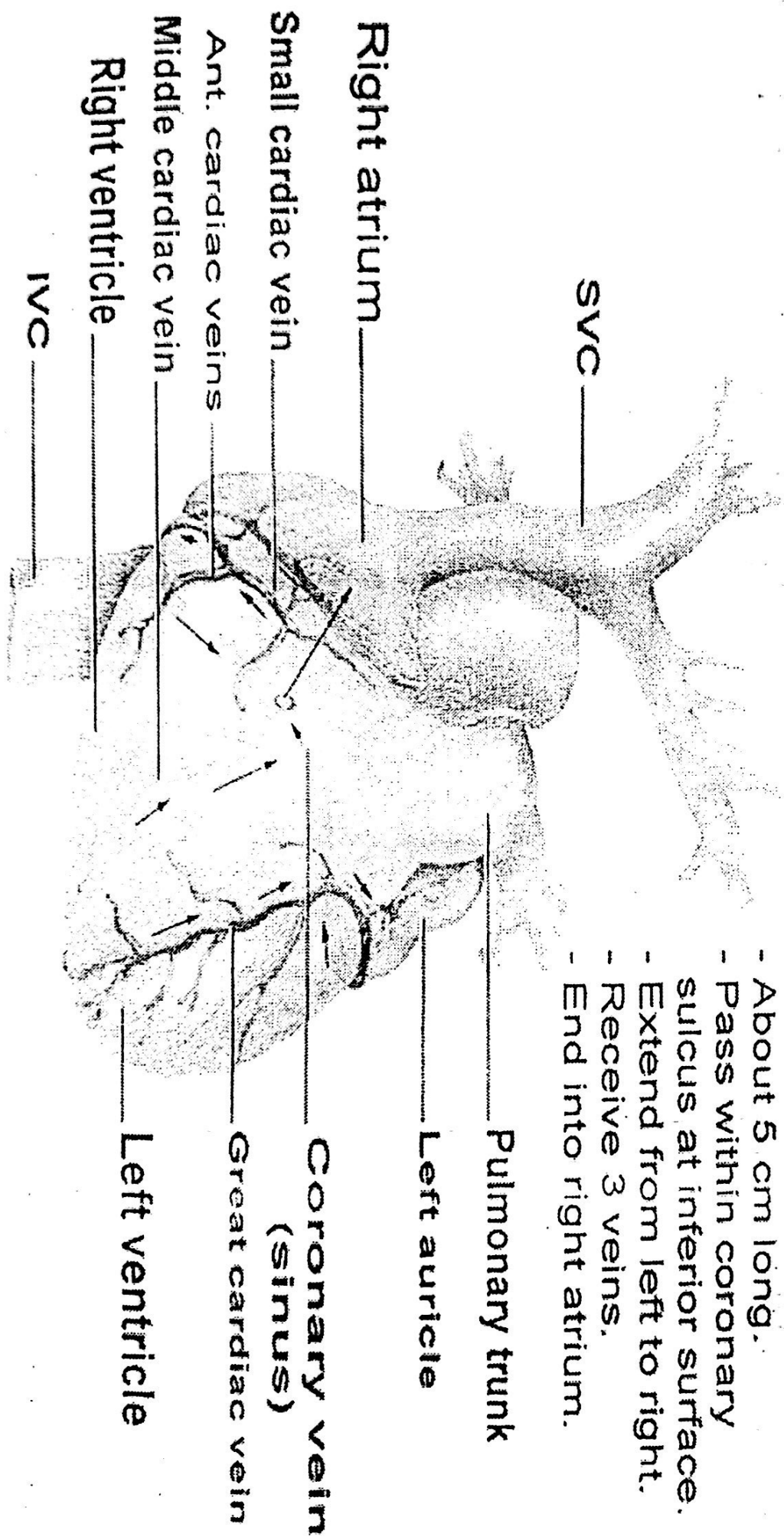
APEX

Lower border



Coronary vein:

- About 5 cm long.
- Pass within coronary sulcus at inferior surface.
- Extend from left to right.
- Receive 3 veins.
- End into right atrium.



Cardiac conduction System

- A network of a modified cardiac muscle fibers specialized in conduction only.
- It is **autorhythmic**, it constantly initiates and coordinates atrial and ventricular muscle contraction.
- Insulated from myocardium by a sheath of connective tissue.
- Establishes a **unidirectional** pathway of excitation signals and contraction.
- Organized into 4 basic components:

